

Abstract Submitted
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Laser-induced fluorescence measurements of ion densities and flows near a dusty plasma¹ KEITH WOOD, ROSS FISHER, EDWARD THOMAS, Auburn University — The interaction between ions and charged microparticles in a dusty (complex) plasma is often one of the mechanisms that have a substantial contribution to the dynamics of the system. However, detailed measurements of ion behavior in the vicinity of dust particles remain elusive. Using the Magnetized Dusty Plasma Experiment (MDPX) test vacuum chamber at Auburn University, a one-dimensional vertical dust string is created in an argon plasma within an open-ended glass box. It has been speculated that the ion focusing effect creates a positively charged region behind each dust particle, altering the electric field felt by the dust particle, which directly affects each of these properties. This presentation will describe experiments that use laser-induced fluorescence (LIF) to measure both the neutral and ion argon densities and flows in the region near the dust particles. The broader application of LIF measurements to the MDPX device will also be discussed.

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